

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

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1. (Previously Presented) A method for updating multimedia feature information in a multimedia retrieval system using weight of multimedia features and reliability of the weight, comprising:

- (a) evaluating a retrieval performance using multimedia feature information;
- (b) detecting change of retrieval environment based on the retrieval performance

evaluation; and

(c) updating the weight of the multimedia feature information and reliability of the weight by reflecting the retrieval performance evaluation and the retrieval environment change.

2. (Previously Presented) A method for updating multimedia feature information in a multimedia retrieval system using weight of multimedia features and reliability of the weight, comprising:

retrieving multimedia using previous weight;

receiving one or more user feedbacks with respect to results of the multimedia retrieval;

calculating retrieval performance with respect to the results of present retrieval using the one or more user feedbacks;

updating a present weight using the one or more user feedbacks;

updating the reliability of the present weight by reflecting the calculated retrieval performance; and

updating the present weight using the updated reliability.

B1  
3. (Previously Presented) The method as claimed in claim 1, wherein updating reliability of the weight is proportionally influenced by the retrieval performance.

4. (Previously Presented) The method as claimed in claim 1, wherein updating reliability of the weight is proportionally influenced by improvement of the retrieval performances.

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B2  
5. (Original) The method as claimed in claim 4, wherein a reliability update rate is proportionally influenced by number of feedbacks participated in calculation of the retrieval performance.

B2 6. (Original) The method as claimed in claim 4, wherein the reliability update is proportionally influenced by the difference between the present and previous retrieval performances.

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7. (Previously Presented) The method as claimed in claim 1, wherein the reliability is calculated by a following formula:

previous reliability  $\times$  (1 + reliability increment) +  $\alpha$

B3 wherein,

reliability increment: a function that multiplies the difference between the present and previous retrieval performance with the number of feedbacks.

$\alpha$ : constant for making the reliability value proportional to the number of feedbacks in same condition.

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B4 8. (Original) The method as claimed in claim 4, wherein a reliability update is proportionally influenced by a ratio of the present retrieval performance to the previous retrieval performance.

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B5 9. (Previously Presented) The method as claimed in claim 1, wherein the reliability is calculated by a following formula:

previous reliability  $\times (1 + \text{reliability increment}) + \alpha$

wherein,

35 reliability increment: a function that multiplies the rate of the present retrieval performance to the previous retrieval performance with the number of feedbacks.

$\alpha$ : constant for making the reliability value proportional to the number of feedbacks in same condition.

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10. (Currently Amended) A multimedia data structure tangibly embodied on a computer-readable medium for a multimedia retrieval using weight of the multimedia feature and reliability of the multimedia feature, comprising:

B6 a reliability of present weight updated by reflecting retrieval performance calculated using one or more user's feedbacks with respect to a multimedia retrieval result obtained using previous weight;

a present weight updated using the updated reliability.

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11. (Currently Amended) A method for updating weight of multimedia features using reliability of the weight in a multimedia retrieval system using weight among multimedia features and weight among elements of the multimedia feature, ~~wherein the weight is updated based on the following way that~~ comprising:

B7  
(a) updating the weight based on a learning rate of the weights among the multimedia features ~~[[is]]~~ higher than ~~[[that]]~~ a learning rate of the weights among elements of a multimedia feature.

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B8  
12. (Original) The method as claimed in claim 11, wherein the weight is updated according to the following formula:

$$[\text{Reliability}^a \times \text{Old\_W} + \text{Cur\_W}] / [\text{Reliability}^a + 1]$$

wherein,  $0 < a < 1$ , and exponential term "a" in the formula for weights of features is less than exponential term "a" in the formula for weights of elements of a feature.

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B9  
13. (Currently Amended) ~~A multimedia data structure for retrieval of multimedia objects using~~ computer readable medium having stored therein:

weight among multimedia features and weight among elements of the multimedia feature, ~~wherein the weight is updated based on the following way that; and~~

~~[[a]]~~ weight-learning rate of the weights among the multimedia features that is higher than ~~[[that]]~~ a weight-learning rate of the weights among elements of a multimedia feature.

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B10  
14. (Currently Amended) The ~~multimedia data structure~~ medium of claim 13, wherein the weight is updated based on the following:

[[b)] the more times [[the]] previous feature weights are learned with [[the]] feedbacks from the user, the less the feature weights are influenced by new feedback; and  
[[c)] the more recent [[the]] feedback is, the more the feedback influence to the feature weights update.

15. (Currently Amended) The ~~multimedia data structure~~ medium of claim 13, wherein the learning rate is in relation to the reliability formula,  $[\text{Reliability}^a \times \text{Old\_W} + \text{Cur\_W}] / [\text{Reliability}^a + 1]$  wherein,  $0 < a < 1$ , and exponential term “a” in the formula for weights of features is less than exponential term “a” in the formula for weights of elements of a feature.

B10  
16. (Currently Amended) The method of claim 11, wherein the weight is updated based on the following:

(b) the more times [[the]] previous feature weights are learned with [[the]] feedbacks from the user, the less the feature weights are influenced by new feedback; and

(c) the more recent [[the]] feedback is, the more the feedback influence to the feature weights update.

17. (Previously Presented) The method of claim 1, wherein the updating the weight of the multimedia feature information comprises:

updating the weights among the multimedia feature information; and

updating weights among elements in a multimedia feature, wherein the multimedia weights learned with frequent feedbacks are relatively less influenced by a new feedback, and wherein recent feedback influences the multimedia weights relatively more than less recent feedback.

18. (Previously Presented) The method of claim 1, wherein the updating the weight of the multimedia feature information comprises determining a weight-learning rate among the multimedia features that is relatively higher than a weight learning rate among elements of a multimedia feature.

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19. (Currently Amended) The method of claim 1, wherein the reliability is calculated by a formula:

previous reliability  $\times$  (1 + reliability increment)

wherein,

reliability increment: a function that multiplies the difference between [[the]] present and previous retrieval performance with [[the]] a number of feedbacks.

20. (Previously Presented) The method of claim 1, wherein the retrieval performance is evaluated using the multimedia feature information for at least one multimedia item returned by a query of searchable multimedia items.

21. (Currently Amended) The method of claim 1, wherein the reliability is calculated by a formula:

previous reliability  $\times$  (1 + reliability increment)

wherein,

reliability increment: a function that multiplies ~~[[the]] a~~ rate of ~~[[the]] a~~ present retrieval performance to ~~[[the]] a~~ previous retrieval performance with ~~[[the]] a~~ number of feedbacks.

B10 22. (Currently Amended) The method of claim 1, wherein the updating the reliability of the weight comprises:

1) wherein when a feedback increases, the more the retrieval performance calculated from the feedback influences ~~[[to]]~~ the reliability;

2) wherein when the retrieval performance is not high, the retrieval performance calculated from a present feedback influence to the reliability update is ~~[[in]]~~ proportional to the reliability level; and

3) wherein when ~~[[the]] a~~ present retrieval performance is higher than ~~[[the]] a~~ previous retrieval performance, the reliability increases, and otherwise the reliability decreases.



23. (Previously Presented) The method of claim 2, wherein the results of the multimedia retrieval is a set of multimedia objects, and wherein the calculated retrieval performance is based on a plurality of multimedia objects in the set.

24. (Previously Presented) The method of claim 2, wherein the one or more user feedbacks independently update the present weight and the reliability of the present weight.

B10 25. (Previously Presented) The method of claim 2, wherein said retrieving multimedia using previous weight comprises querying a searchable set including multimedia data using said previous weight.

26. (Previously Presented) The multimedia data structure of claim 10, wherein the present weight is updated using the one or more user feedbacks.

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